

REMARKS

These remarks are in response to the Office Action mailed May 26, 2010. Claims 50-72 and 85-90 have been canceled as directed to a non-elected invention and without prejudice to Applicants' right to prosecute the canceled subject matter in any divisional, continuation, continuation-in-part or other application. Support for the amendments to the claims can be found, for example, at page 25, lines 20-22. No new matter is believed to have been introduced.

I. REJECTION UNDER 35 U.S.C. §112, FIRST PARAGRAPH

Claims 98-110, 112-123 and 126-159 stand rejected under 35 U.S.C. §112, first paragraph as allegedly failing to comply with the written description requirement and lack of enablement. The claims allegedly contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants respectfully traverse this rejection.

Although the rejection is confusing, Applicants have amended the claims to clarify the separation of regions. Support is clearly found at page 25, lines 20-22 of the specification as filed.

For at least the foregoing reasons, Applicants respectfully request withdrawal of this rejection.

II. REJECTION UNDER 35 U.S.C. §112, SECOND PARAGRAPH

Claims 98-110, 112-123 and 126-159 stand rejected under 35 U.S.C. §112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse this rejection.

It appears that the use of the term "similar material" raises issues regarding antecedent basis in the independent claims. Applicants have amended the claims to make clear the materials being referred to in the claims. Accordingly, the rejection may be withdrawn.

III. REJECTION UNDER 35 U.S.C. §102

Claims 98, 104-105, 108-110, 112, 115, 117, 120-122, 126-127 and 159 stand rejected under §102(b) as allegedly anticipated by Haugen (Analytical Chemistry 1988). Applicants respectfully traverse this rejection.

In order for a claim to be anticipated the cited reference must teach each and every element of the claim. Haugen does not teach a sensor having regions of a conductive material and a conductive organic material having **alternating regions** separated by about 10-1000 angstroms between two conductive leads, wherein the conductive material is selected from the group consisting of an inorganic conductor, a carbon black, and a mixed inorganic/organic conductor, wherein the inorganic conductor is a metal, a metal alloy, a metal oxide, a superconductor, or a combination thereof and wherein the inorganic conductor has an electrical conductivity that decreases as the temperature increase. Haugen does not teach gold as a sensing area. Haugen does not teach alternating regions including gold. Haugen teaches and suggests only a semiconductive material between two leads there is no alternating regions. Accordingly, Haugen cannot anticipate Applicants' claimed invention.

IV. REJECTION UNDER 35 U.S.C. §103

Claims 99, 101, 106-107, 113, 128-135, 137, 139 and 142-158 stand rejected under 35 U.S.C. §103 as allegedly unpatentably over Haugen (above) and further in view of Gibson or Lewis. Applicants respectfully traverse this rejection.

Haugen was addressed above and does not teach alternating regions separated by 10-1000 Angstroms of a conductive material and a conductive organic material. Lewis also does not teach or suggest alternating regions of a conductive organic material and a conductive material. Gibson also do not each or suggest alternating regions of a conductive material (wherein the conductive material is selected from the group consisting of an inorganic conductor, a carbon black, and a mixed inorganic/organic conductor, wherein the inorganic conductor is a metal, a metal alloy, a metal oxide, a superconductor, or a combination thereof and wherein the inorganic conductor has an electrical conductivity that decreases as the temperature increase) and a conductive organic material. The Examiner points to

the terms “copolymer” and “blends”. As repeatedly pointed out in the prior responses and on appeal, a copolymers when polymerized do not form to separate materials but become a single material. In addition, “blends” is highly indefinite and can only be considered as an alternative term for “copolymers”. However, even if the term included combinations of two different types of conductive polymers the combination still would not provide alternative regions of a conductive organic polymer and a conductive material wherein the conductive material is not a polymer (as set forth in the claims and recognized by the Examiner at page 11, paragraph 10 of the present office action).

For, at least, the foregoing reasons the claims submitted herewith are non-obvious over the references either alone or in combination.

Claims 100, 102-103, 113, 117-121, 123, 135 and 139-143 stand rejected as allegedly unpatentable over Haugen or Haugen in view of Gibson or Lewis as above and further in view of Stetter or Wampler. Applicants respectfully traverse this rejection.

Haugen and Haugen in view of Lewis or Gibson were addressed above. The addition of Wampler does not remedy the deficiencies above.

Wampler teaches that polypyrrole composites are useful for eliminating Cr(VI) in the environment by reducing Cr(VI) to Cr(III) (see, e.g., page 1820). Wampler does not teach or suggest sensors and sensor systems. There is absolutely no reason why one of skill in the art would even consider this reference in arriving at a sensor material. The reference is directed to a purpose that has nothing to do with sensors, particularly resistometric sensors. There is no teaching or suggestion that any material in Wampler would be useful as a material in either an amperometric-electrochemical sensor system or in a conductimetric/resistometric sensor system. Applicants respectfully submit that the addition of Wampler, which has nothing to do with sensor systems, is based upon hindsight reconstruction, wherein the Office is picking and choosing among references that have no bearing on sensor systems to arrive at Applicants' invention. Such hindsight reconstruction and picking and choosing among references where there is no suggestion in the art for such combination cannot be done.

Furthermore, Wampler do not teach or suggest alternative regions of material wherein one comprises a doped conductive organic material and one is a conductive material is selected from the group consisting of an inorganic conductor, a carbon black, and a mixed inorganic/organic conductor, wherein the inorganic conductor is a metal, a metal alloy, a metal oxide, a superconductor, or a combination thereof and wherein the inorganic conductor has an electrical conductivity that decreases as the temperature increase. Again, this reference fails for at least the same reasons identified above with respect to Haugen, Lewis, and Gibson.

Stetter teaches the use of a chemiresistive layer comprising a mixture of conductive particles and an elastomer/polymer (see, column 3, lines 5-9). Various polymers are identified at column 4, lines 49-55, and consist of ethylene propylene, styrene butadiene, silicone, fluorsilicone, butyl rubber, isobutylene isoprene, chloroprene, fluorocarbon and polyacrylate, all commonly used insulating polymers. Thus, Stetter does not teach a mixture of two compositionally different *conductive* materials, but to the contrary teaches and suggests only mixtures of conductive material and non-conductive material. This is cumulative to Lewis (addressed above).

Claims 114, 116, 136, 138 and 158 stand rejected as allegedly unpatentable over Haugen or Haugen in view of Gibson or Lewis (as above) and further in view of Mifsud I and II (USP 5,801,297 and WO 95/08113, respectively). Applicants respectfully traverse this rejection.

Mifsud I and II are cumulative and teach that polymer sensors are less sensitive than semiconductive sensors (see, e.g., column 1, lines 62-64). In order to overcome this lack of sensitivity Mifsud I and II combine ***different sensor types*** (e.g., semiconductive sensors, polymer sensors, and surface-acoustic-wave sensors). Mifsud I and II teaches combining sensor types ***not*** changing sensor materials. Mifsud I described the advantages of Mifsud's invention at column 3, lines 22-32:

The point of this . . . is to provide. . . three different means of detection in order to obtain better sensitivity and better general selectivity of detection. In fact, as has been explained at the beginning of the description, the different types of sensors, with semiconductive, conductive polymer or surface acoustic wave technology, each have

different characteristics which are complementary: good sensitivity (semiconductive sensors), good selectivity (conductive-polymer sensors), and good mass/volume measurement (surface-acoustic-wave sensors).

Accordingly, the addition of Mifsud I and/or II does not remedy the deficiencies of the prior references.

Claims 98-99, 101, 104-110, 112-113, 115, 117, 120-122, 126-135, 137, 139 and 142-159 are allegedly unpatentable over Gibson (as described above) in view of Haugen (as above) and Barisci (Trends in Polymer Science, 1996). Applicants respectfully traverse.

As the Board recognized the differences in amperometric and resistometric sensors are significant in their operation. The fact that a polypyrrole amperometric sensor change chemically is due to "poisoning" which is a bad thing. One of skill in the art would not look to the "poisoning" of a material as a good thing in a resistometric sensor (i.e., "poisoning" is an undesirable aspect of both resistometric and amperometric sensors). Furthermore, the "oxidation" or "reduction" of an amperometric material is due to changes in the electrolyte solution (not due to the actual analyte being contacted with the sensor material). The oxidation/reduction of the electrolyte solution causes electron flow through and amperometric system (i.e., the electrons flow due to the oxidation/reduction. In contrast, resistometric sensor systems cause electron flow by a power source.

The fact that Barisci describes amperometric sensors and resistometric sensor general operations does not remedy the deficiencies of the prior references. In fact, the additional of Barisci appears to be derived by the Office performing hindsight reconstruction. For example, the hindsight reconstruction to combine the teachings at page 15, first full paragraph, makes little sense. There is absolute no suggestion in any of the references of a desirability to "reduce the resistivity of the organic conductor materials" or that such a "reduction" in resistance would facilitate a "more reasonable [detection] condition".

Even with the addition of Barisci the combination still fails to set forth a prima facie case of obviousness since the combination fails to teach or suggest the combination of the sensor materials as set forth in Applicants' independent claims.

Claims 100, 102-103, 113, 117-121, 123, 135 and 139-143 are allegedly unpatentable over Gibson in view of Haugen and Barisci as applied above, and further in view of Lewis, Stetter or Wampler. Applicants respectfully traverse this rejection.

Each of the references and various combinations thereof have been addressed above. Briefly, Gibson does not teach or suggest combination of a conductive material and an organic conductive material. Haugen and Gibson do not teach or suggest combination of a conductive material and an organic conductive material. Gibson, Haugen and Barisci do not teach or suggest combination of a conductive material and an organic conductive material. Gibson, Haugen, Barisci and Lewis, Stetter or Wampler do not teach or suggest combination of a conductive material and an organic conductive material.

Claims 114, 116, 136, 138 and 158 are allegedly unpatentable over Gibson in view of Haugen and Barisci and further in view of Mifsud I and/or II. Applicants respectfully traverse this rejection.

Each of the references and various combinations thereof have been addressed above. Briefly, Gibson does not teach or suggest combination of a conductive material and an organic conductive material. Haugen and Gibson do not teach or suggest combination of a conductive material and an organic conductive material. Gibson, Haugen and Barisci do not teach or suggest combination of a conductive material and an organic conductive material. Gibson, Haugen, Barisci and Mifsud I and/or II do not teach or suggest combination of a conductive material and an organic conductive material.

For at least the foregoing, the Applicant submits that the claimed invention is patentable and request reconsideration and notice of such allowable subject matter.

The Director is authorized to charge any required fee or credit any overpayment to Deposit Account Number 50-4586, please reference the attorney docket number above.

The Examiner is invited to contact the undersigned at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted,

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